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Emergency Preparedness Training for Public Health Nurses: a Pilot Study

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ABSTRACT *The Columbia Center for Public Health Preparedness, in partnership with the New York City Department of Health, recently developed an emergency preparedness training program for public health workers. A pilot training program was conducted for a group of school health nurses and evaluated using a pre/posttest design. A surprising finding was that 90% of the nurses reported at least one barrier to their ability to report to duty in the event of a public health emergency. The most frequently cited barriers included child/elder care responsibilities, lack of transportation, and personal health issues. These findings suggest that it may be prudent to identify and address potential barriers to public health workforce responsiveness to ensure the availability of the workforce during emergencies.*

INTRODUCTION

The significance of a well-trained, competent, and responsive public health workforce cannot be overstated, as demonstrated during recent public health emergencies (e.g., anthrax bioterrorism, World Trade Center [WTC] terrorist attacks, and recent West Nile virus outbreak). The Columbia University Center for Public Health Preparedness[1] of the Mailman School of Public Health (here called the Columbia Center) is part of a network of 15 preparedness centers established in schools of public health by the Centers for Disease Control and Prevention (CDC). Network centers work in partnership with local and state health departments to train the public health workforce to effectively provide the essential public health services during times of emergency.[2] One of the key objectives of the preparedness centers is to develop and make available competency-based emergency preparedness training curricula for the public health workforce.

This report highlights key findings from a recent pilot training program for public health nurses on emergency preparedness and response that was developed by the Columbia Center in partnership with the New York City Department of Health.

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PILOT PROGRAM OVERVIEW

In the spring of 2001, the Columbia Center conducted an assessment of the emergency preparedness training needs of the workforce of the New York City Department of Health by conducting focus groups, consulting with management, and reviewing various polices and procedures. Results indicated that all categories of employees could benefit from a basic-level emergency preparedness training program. The first group selected to receive training was the nurses working in the Department of Health School Health Program; their functional roles during emergency response include staffing shelters, answering telephone hotlines, and public education. This group was selected because it represented the largest work group within the Department of Health, with close to 1,000 nurses. A basic-level training program was developed and pilot tested on a convenience sample of 50 nurses. The program was evaluated based on results from a program satisfaction survey and a pre/post questionnaire.

PILOT PROGRAM CONTENT DEVELOPMENT

The Columbia Center's curriculum team prepared learning objectives and program content based on the Core Emergency Preparedness Competencies for Public Health Workers.[3] The program content included (1) definitions of emergencies and disasters; (2) roles of the New York City Department of Health during emergency response; (3) responsibilities of other agencies involved in emergency response at local, state, and federal levels; (4) elements of the New York City Department of Health chain-of-command structure; (5) functional roles during emergencies; (6) communication strategies and use of special equipment; (7) emergency protocols; and (8) shelter management procedures and necessary supplies and equipment.

METHODS

All procedures involving human subjects had prior approval of the Columbia University Review Board, and signed informed consent was obtained from all participants. Participant satisfaction with the program was measured using a traditional 10-item survey instrument. Changes in participants' knowledge, attitudes, and intended behaviors and barriers to being able to report during an emergency were assessed using a 40-item, immediate pre/posttest, followed by a 1-month follow-up to determine sustainability of effects. Analysis was performed using a paired Student *t* test.[4] Since the response rate for the 1-month follow-up was only 26% (n = 13), these data are not included in the analysis.

RESULTS

There were 53 public health nurses who attended the pilot program on basic-level emergency preparedness and response. Of these, 50 (94%) completed both pre- and posttests, and 96% (n = 48) of the 50 respondents considered the training a valuable experience. The precise reasons for the low 1-month follow-up response rate could not be ascertained.

The Table illustrates the results of the pilot training on the participants' emergency preparedness knowledge and attitudes concerning reporting during an emergency. Significant improvements in knowledge were achieved in most areas of basic

TABLE. Emergency preparedness training program: comparison of pre/posttest responses

	Pretest		Posttest		
	n	(%)	n	(%)	*P*
Knowledgeable about					
Role of the DOH in an emergency	12	(24)	22	(44)	<.05
Role of the OEM in an emergency	31	(62)	45	(90)	<.001
Their own role in an emergency	38	(76)	39	(78)	n.s.
How they would be contacted in an emergency	35	(70)	32	(64)	n.s.
Location of the nearest shelter	20	(40)	16	(32)	n.s.
Contents of a shelter equipment bag	6	(12)	47	(94)	<.001
Attitudes concerning reporting during an emergency					
Feels personally responsible to report in an emergency	48	(96)	50	(100)	n.s.
Feels coworkers would respond in an emergency	19	(38)	19	(38)	n.s.
Intends to respond in an emergency	35	(70)	41	(82)	n.s.

DOH, Department of Health; n.s., not significant; OEM, Office of Emergency Management.

emergency preparedness. No improvement was achieved in knowledge related to defining their specific role, how they would be contacted, or the location of the nearest shelter in an emergency. We attribute these findings to the fact that, at the time of the pilot, the New York City Department of Health was in the process of refining its emergency plan, and therefore the pilot program content related to these elements lacked sufficient clarity. Pretest scores indicated that nurses had positive attitudes, with the overwhelming majority (96%, n = 48) believing they were responsible for reporting to work during an emergency. However, only 70% (n = 35) reported that they actually intended to report to work during an emergency. After the training, posttest scores demonstrated a 12% increase in nurses' intentions to report to work. However, the most notable and surprising finding was that 90% (n = 45) of the nurses reported at least one perceived barrier to reporting to work during an emergency. Child/elder care obligations were noted as the most important barrier (32%, n = 16), followed by lack of transportation (14%, n = 7) and personal health issues (14%, n = 7).

CONCLUSION

The pilot program was useful in guiding changes in the emergency response training program as well as identifying perceived barriers to nurses' (and potentially other employees') ability to report to work during public health emergencies. Changes were made to the format and substance of the program; most important, a new section on developing personal emergency plans was added to address child/elder care needs and transportation issues. These barriers are important to consider to ensure workforce availability for effective emergency response.

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Authors' Note: In August 2001, 700 additional school health nurses received the revised basic emergency preparedness training program. Two weeks later, immediately following the World Trade Center attacks, the school nurses were called to duty to open and operate New York City emergency shelters. In spite of exceptional difficulties in communication and transportation, the public health nurses were able to effectively respond in a timely way, and 100% of the designated shelters were functional in New York City within 24 hours after the World Trade Center attacks.

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